



Fact Sheet

US Army Engineer
Research and Development Center
Waterways Experiment Station

March 1999

Public Affairs Office Ž 3909 Halls Ferry Road Ž Vicksburg, MS 39180-6199 Ž (601) 634-2504 Ž <http://www.wes.army.mil>

Structural Criteria for Operating the C-17 on Semi-Prepared Airfields

Purpose: Determine the structural requirements for the C-17 aircraft to operate on semi-prepared airfield surfaces.

Background: The C-17 aircraft was designed to operate on paved (portland cement concrete and asphalt), semi-prepared (soil, aggregate, stabilized) and matted airfields. While the capabilities of the C-17 were being demonstrated at Forward Landing Strip (FLS) Holland, Fort Bragg, NC in early 1995, both the aircraft and the airfield were damaged. FLS Holland was a soil-surfaced training airfield routinely used by C-130 aircraft. The C-17 aircraft caused rutting and created foreign object damage (FOD) material while operating on FLS Holland. Because of the problems encountered at FLS Holland, the contingency operations release for operating the C-17 on semi-prepared airfields was very restrictive. The C-17 System Program Office was concerned with determining the capability of the aircraft and the impact of the aircraft on semi-prepared airfields.



Facts: The US Army Engineer Waterways Experiment Station (WES) was asked to support the C-17 System Program office in determining the impact of the C-17 aircraft on semi-prepared airfields. One aspect of this support required the verification/modification of the existing structural criteria requirements for a semi-prepared airfield. In order to determine the impact of the C-17 on semi-prepared airfields, the WES constructed a matrix of full scale pavement sections with different thicknesses and strengths of materials. The full scale pavement sections were trafficked with a load cart configured as a six wheel C-17 main gear. The gear was loaded to a level equivalent to the C-17 maximum contingency airfield operating weight of 447 kips.

Point of Contact: For more information, contact Mr. William P. Grogan at (601) 634-2226 or e-mail at groganw@wes.army.mil. General information on the US Army Engineer Waterways Experiment Station is available on the web site at <http://www.wes.army.mil>.